TRANSFORMATIONAL TECHNOLOGY FOR ACCIDENT TOLERANT FUEL (ATF)

SiGA™ Silicon carbide technology developed by General Atomics greatly enhances fuel rod coping time under loss of core cooling and improves performance across normal operations.

Engineered cladding design combines a tough composite layer with an impermeable monolithic layer.

- Substantially enhances safety for existing LWRs
- Saves money through reduction in redundant backup safety systems
- Improves material strength retention at high temperatures
- Reduces hydrogen formation during loss-of-coolant accidents
- Drop-in compatibility to replace existing LWR fuel
SiGA™ COMPOSITE CLADDING FABRICATION

- Reinforced cladding with high-purity silicon carbide fibers
- Tailored fiber patterns and angles to control mechanical properties
- Tightly controlled dimensional tolerances
- Multi-layered structures to provide toughness and impermeability
- Long-term strength and stability under irradiation

IRRADIATION-RESISTANT SiC-BASED JOINING

- High-purity stoichiometric SiC bonding for joining SiC components
- Full strength retention under neutron irradiation
- Joint-burst strength exceeds anticipated pressure at end-of-life
- Permeability performance surpasses LWR industry standard

ENGINEERED PERFORMANCE

- Retains strength to beyond 1600°C
- Impermeable at internal pressures over 6000 psi
- Pseudo-ductility maintains coolable geometry
- Hermeticity retained after quenching in boiling water

Strength of SiGA™ Tube Does Not Degrade at High Temperatures

Joint Strength Does Not Change Under Irradiation

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